

REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

Appreciation is expressed to Examiner Butler for the indication that Claims 3-5 would be allowable if rewritten in independent form.

The claims currently pending in this application are Claims 1-5, with Claim 1 being the only independent claim. Before discussing the subject matter recited in independent Claim 1, it is believed that a brief overview of the subject matter of this application may be helpful.

As discussed in the present application, the disclosed subject matter pertains to a vehicle brake squeal control device which is able to carry out brake squeal reducing control according to the desires or preferences of the driver. Thus, for example, the conditions for initiating brake squeal reduction can be individually set to meet the requirements or preferences of the driver. When the driver determines that the brakes are squealing and wishes to reduce or stop the brake squealing, the driver can operate a manual switch. When the manual switch is operated, a brake squeak controller controls the brakes to reduce brake squeal. A plurality of sensors are provided to transmit signals indicative of various states (e.g., travel state, braking state and/or temperature state) corresponding to brake squeal. When the manual switch is operated by the driver, the signals from these sensors are stored in a memory. The signals thus stored in the memory indicate the various states under which the driver believes the brakes are squealing. Once the manual switch has been operated a predetermined number of time, the setter sets squeal control values based on the signals stored in the memory. Thereafter, when the signals received

from the sensors fall within the range of set values, the brake squeal controller controls the brakes to reduce brake squeal. This can occur automatically even if the manual switch is not being operated. Thus, if the driver operates the manual switch each time he/she hears brake squeals which the driver finds undesirable, once the manual switch has been operated a plurality of times, the control circuit is able to "learn" the brake squeals which the driver finds undesirable and can thereafter control the brakes to reduce brake squeal when the signals from the sensors fall within the range of set values indicating brake squeals which the driver finds undesirable.

Claim 1 has been amended to better define the invention in a way more clearly distinguishing over the disclosures contained in U.S. Patent No. 6,125,974 to *Nishizawa et al.* and U.S. Patent No. 4,743,074 to *Inoue*.

Claim 1 defines a vehicle brake squeal control device comprising a control circuit, a manual switch which transmits a signal to the control circuit every time the manual switch is operated, and a plurality of sensors which transmit signals indicative of states of travel and braking and temperature corresponding to brake squeals. The control circuit comprises a memory which stores the signals transmitted from the sensors when the manual switch is operated, a setter which sets squeal control values based on the signals stored in the memory when the number of operations of the manual switch reaches a predetermined value, and a comparator which compares, after the squeal control values have been set, the signals transmitted from the sensors with the squeal control values to determine whether the signals transmitted from the sensors are within the range of the squeal control values. A brake squeal controller issues a command to reduce brake

squeals if the comparator determines that the signals transmitted from the sensors are within the range of the squeal control values, or when the signal from the manual switch is entered into the control circuit.

Nishizawa et al. discloses a vibration damper for vehicle brakes that is specifically adapted to restore the performance of piezoelectric elements whose performance has deteriorated by virtue of temperature buildup resulting from repeated braking operations. The performance of the piezoelectric elements is restored through use of a high voltage source 11 that generates a high voltage using the car battery.

Inoue discloses an anti-squeal braking system for a vehicle that includes first and second brakes that cooperate together to apply a braking force to the vehicle. The first brake is provided with a brake rotor and a friction member disposed opposite the brake rotor. A hydraulically operated actuator forces the friction member against the brake rotor. An anti-squeal controller controls the first and second brakes so that the first brake is operated without braking squeal while the second brake is operated to provide a braking effect equal to the difference between an actual braking effect applied to the vehicle by the first brake and a desired braking effect that should be applied to the vehicle. A detector device is provided to sense the operation value of an operator-controlled brake operating member. The desired braking effect is predetermined and corresponds to the operation value of the operator-controlled brake operating member.

Neither *Nishizawa et al.* nor *Inoue* discloses a vehicle brake squeal control device having the combination of features recited in independent Claim 1, including a manual switch which transmits a signal to a control circuit every time the manual

switch is operated and a plurality of sensors which transmit signals indicative of states corresponding to brake squeals, wherein the control circuit comprises a memory storing the signals transmitted from the sensors when the manual switch is operated, a setter which sets squeal control values based on the signals stored in the memory when the number of times that the manual switch is operated reaches a predetermined value, a comparator which compares, after setting the squeal control values, the signals transmitted from the sensors with the squeal control values to determine whether they are within the squeal control value range, and a brake squeal controller that issues a command to reduce brake squeals in the manner set forth in independent Claim 1. It is thus respectfully submitted that the claimed vehicle brake squeal control device recited in independent claim 1, as well as the dependent claims, is patentably distinguishable over the disclosures contained in *Nishizawa et al.* and *Inoue*. Accordingly, withdrawal of the rejection of record is respectfully requested.

As a final point, copies of the two documents identified in the background portion of this application are submitted by way of the accompanying Information Disclosure Statement.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: September 1, 2004

By: Matthew L. Schneider
Matthew L. Schneider
Registration No. 32,814

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620